



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,142	07/27/2005	Paolo Cuzzato	13543-00001-US	6171
23416	7590	03/24/2006	EXAMINER	
CONNOLLY BOVE LODGE & HUTZ, LLP			NGUYEN, NGOC YEN M	
P O BOX 2207			ART UNIT	PAPER NUMBER
WILMINGTON, DE 19899			1754	

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/541,142	CUZZATO, PAOLO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ngoc-Yen M. Nguyen	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8, 12-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 12-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 requires "an alkali metal derivative", by definition are metal in Group I.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is unclear if the aluminum fluoride is actually obtained by treating the starting aluminum fluoride with an alkali metal derivative or just "obtainable".

In claims 3, 5, there is no antecedent basis for "the alkali metal salts".

In claim 8, there is no clear antecedent basis for "after impregnation".

In claim 25, it is unclear what is required by "Friedel-Crafts type", it is unclear if a product (i.e., a Friedel-Crafts catalyst) or a process is required.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1754

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 12-15, 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elscheikh et al (5,895,825) or Sweeney (4,105,691), either one in view of Cuzzato et al (6,187,280), and optionally further in view of Cuzzato et al (5,600,037).

Elscheikh '825 discloses a process for preparing 1,1,1,3,3-pentafluoropropane (note claim 1). In the process of Elscheikh '825 a fluorination catalyst is used. The catalyst can be aluminum fluoride or a chromium based catalyst, which chromium-based catalyst is either unsupported or supported on fluoridated alumina or activated carbon. The "fluorinated alumina" fairly suggests aluminum fluoride. The chromium catalyst being used alone or in the presence of a co-catalyst such as an alkali metal (for example, sodium, potassium or lithium), etc. (note column 2, lines 1-27).

Alternatively Sweeney '691 discloses a process for the production of chlorofluorinated carboxylic acids (note claim 1). The fluorination catalyst used in Sweeney comprises a stable carrier metal salt carrier, a Deacon catalyst, and a promoter (note claim 1 and claim 13). The carrier is preferred to be aluminum fluoride (note claim 18), the Deacon catalyst can be Cu, Cr, etc. and the promoter can be alkali metal chloride such as sodium, potassium, etc. (note column 6, lines 11-41).

The difference is Elscheikh '825 or Sweeney '691 does not teach the fluorine content or surface area of the aluminum fluoride support.

Cuzzato '280 discloses a process for preparing aluminum fluoride having a surface area of at least  $25 \text{ m}^2/\text{g}$  and a fluorine content of at least 95% by weight of the stoichiometric value of fluorine in aluminum fluoride (note claim 1). Cuzzato '280 further teaches that the aluminum fluoride is known for being used as support for catalyst in fluorination of chlorinated organic compounds (note column 1, lines 13-18). The aluminum fluoride product of Cuzzato '280 is advantageous because of its high surface area and high pore volume, it does not require frequent regeneration processes when it is used in fluorination (note column 2, lines 16-19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the aluminum fluoride, as suggested by Cuzzato '280, as the support for the catalyst in Elscheikh '825 or Sweeney '691 because such aluminum fluoride would not require frequent regeneration.

For the type of reactions in which the catalyst of Elscheikh '825 or Sweeney '691 is used, it would have been obvious to one skilled in the art to use the catalyst as suggested by the combined teaching of the applied references in any type of reaction which require a fluorination catalyst or a catalyst comprises aluminum fluoride carrier.

Cuzzato '037 can be applied to teach that the catalyst comprising the aluminum fluoride can be used in a reaction of isomerization of HCFC-123a to HCFC-123.

Claims 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elscheikh et al (5,895,825) or Sweeney (4,105,691), either one in view of Cuzzato et al

Art Unit: 1754

(6,187,280) as applied to claims 1-8, 12-15, 24-27 above, and further in view of Carmello et al (4,967,023).

The difference not yet discussed is Elscheikh '825 or Sweeney '691 does not specifically disclose the process of making the catalyst.

Carmello '023 is applied to teach a conventional process in the art to produce a chromium catalyst supported on aluminum fluoride carrier.

As disclosed in Example 1, aluminum trifluoride was impregnated with chromium chloride. Subsequently, the catalyst was partially dried at 110°C for 1.5 hrs. The catalyst was heat up to 200°C in a nitrogen flow and then activated with HF. In Example 4, the impregnation and drying was repeated until a desired amount of chromium was obtained. Carmello '023 further teaches that after the catalyst was dried, it is subjected to activation treatment with air or nitrogen either or not in the presence of steam. The activation treatment is generally carried out at a temperature from 200-600°C to convert chrome to chromium oxide (note column 2, lines 51-57). This step is considered the same as the claimed calcinations step.

When Elscheikh '825 or Sweeney '691 is taken in view of Carmello '023, it would have been obvious to one of ordinary skill in the art to use similar process as the one disclosed in Carmello '023, e.g. by impregnation method, to put the alkali metal promoter on the catalyst support. It would have been obvious to one skilled in the art to impregnate the chromium catalyst and the alkali metal promoter in any other as long as a resulting catalyst can be used for the intended application.

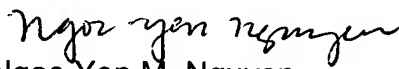
It would have been obvious to one of ordinary skill in the art to use the process of Carmello '023 to produce the catalyst of Elscheikh '825 or Sweeney '691 because such process is known and conventional in the art.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stanley Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 or (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.

  
Ngoc-Yen M. Nguyen  
Primary Examiner  
Art Unit 1754

nmn  
March 20, 2006